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A SOVIET EVALUATION OF "REFERATIVNYY ZHURNAL KHIMIYA"

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[Comment: According to a note by the Russian editor, this article is based on a discussion of Referativnyy Zhurnal Khimiya which took place at the Department of Chemical Sciences, Academy of Sciences USSR on 22 October 1954.

Some of the proposals made in the article have already been adopted and are being carried out. Classified Soviet bibliographies of articles appearing in foreign journals are being published in several fields at present. Khimiya -- Sistematicheskiy Ukazatel' Statey v Inostrannykh Zhurnalakh (Chemistry -- A Systematic Index of Articles in Foreign Journals), one of a series of several bibliographic periodicals of this type, has been published since the close of 1954. A separate journal of abstracts covering biological chemistry has been published since January 1955.]

The publication of journals of abstracts is important in any field of science. It is understandable, however, that the necessity of publishing a journal of this type arose first of all in the field of chemical sciences. The reason is not only that the special chemical literature is more extensive than the literature in any other field of science but also that articles bearing on important problems in various subdivisions of chemistry are published in journals devoted mainly to borderline sciences, namely physical, biological, medical, and agricultural journals. The total number of the journals in the fields mentioned, from which the chemical abstract journal derives its material, amounts to 5,500.

The Soviet abstract journal in chemistry is not the only publication of this type. The oldest chemical abstract journal is the German Zentralblatt. In the US, Chemical Abstracts is published. There are also British, Japanese, French, Czech, Hungarian, Rumanian, and other chemical abstract journals.

The Soviet abstract journal Referativnyy Zhurnal Khimiya is a component part of the single abstract journal published by the Institute of Scientific Information, Academy of Sciences USSR. The single abstract journal embraces many fields of science. This considerably complicates the work of every individual part if this journal, both in establishing a demarcation line between the individual publications in various fields of science and also so far as cross references are concerned.

At the same time, the subject matter, the number of items abstracted, and the extent of information given in the single abstract journal are considerably broadened thereby. Although the chemical abstract journal began to appear in October 1953, all chemical publications issued since January 1953 were covered by the abstracts published in it. Thus, at the very beginning, a great lag was formed between the dates of publication of the items abstracted and the dates of publication of the abstracts. Six issues of the journal were published in 1953. In 1954, it was possible to complete, but not to the fullest extent, the abstracting of material published during 1953. In 1954, 23 issues of the periodical appeared. In the beginning of 1955, No 24 will be published, which will contain an authors' index. Later, as a separate item, a subject index will be published.

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The issues already published permit one to form an opinion as to how successfully the journal carries out the task set before it. Altogether, 51,000 abstracts have been published. The journal abstracts publications appearing in 34 languages. However, the coverage is not uniform. Articles published in European languages are covered most thoroughly. The Japanese chemical literature is not covered adequately, although a very large amount of chemical material is published in Japanese. There are 720 Japanese journals which publish articles in the field of chemistry. In Chemical Abstracts [US], for example, Japanese publications occupy the second place after publications in the English language.

Referativnyy Zhurnal Khimiya will fulfill its task only when the most important new developments, as reflected in the world of chemical literature, will be reported in it in the form of abstracts with the least possible delay prior to publication. This has not yet been achieved.

It follows from this that the primary task of the journals is to shorten the lag prior to publication of the abstracts. To achieve this it is probably necessary to become more selective and to publish first of all abstracts of publications which contain some new ideas. Abstracts of articles published in the newspaper Literaturnaya Gazeta and Soviet journals, which are generally available, should also be eliminated. Another expedient would be to limit the discussion of material derived from publications generally available to the readers of the abstract journals. This will make it possible to increase the space devoted to material abstracted from publications not easily accessible and from publications with restricted circulation, e.g., dissertations.

Some saving of space will undoubtedly be accomplished by reduction of the coverage by the chemical abstract journal resulting from the publication of abstract journals on physics, biology, and geology. A number of subdivisions ordinarily included in a chemical abstract journal will be transferred to the abstract journals in other fields. For instance, abstracts on problems of radioactivity, nuclear reactions, properties of isotopes, and mineralogy will be transferred. Only cross references to abstract journals in other fields will remain in Referativnyy Zhurnal Khimiya.

The abstracts of articles are arranged according to the following subdivisions: Methodology of Chemistry, History of Chemistry, and General Problems; Physical Chemistry; Inorganic Chemistry and the Chemistry of Complex Compounds; Geochemistry and Hydrochemistry; Organic Chemistry; Biological Chemistry; Analytical Chemistry, General Laboratory Equipment, Recording and Control Instruments; Chemical Technology, Chemical Products and Their Application; Corrosion and Corrosion Protection; Chemical Technology and Equipment of Chemical Industries; and Technical Safety Procedures and Sanitation Techniques. It may already be stated at this stage that not all subdivisions of chemistry are given equal coverage by the journal; some fields do not receive sufficient attention, as for instance, geochemistry. The usefulness of the subdivision on analytical chemistry in the 1953 issues is considerably impaired by the fact that abstracts of articles by Soviet scientists which appeared in irregular periodicals (of the type of Trudy Nauchnyye Zapiski, etc.) and which were published during the first quarter of 1953 have not been included. As a result, the level of the development of analytical chemistry in the USSR has not been reflected correctly. Abstracts of very interesting work in the field of analytical chemistry reported in Chinese and Japanese are absent. Frequently, abstracts are published in the wrong subdivision. For instance, many abstracts on work obviously of an analytical type have been published in the subdivisions of chemical technology, metallurgy, electrochemistry, and others.

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For instance, Abstracts No 5317 ("Concerning Methods for The Chemical Analysis of Clays and Kaolins) and No 5324 ("A Method for the Analysis of Calcium Oxide-Sodium Glasses of the Windowpane and Mirror Types") are published in the subdivision on chemical technology, although it would have been more fitting to publish them in the subdivision on analytical chemistry and to give references to these abstracts in other subdivisions. Abstract No 5454 ("The Ukrainian Conference on Chemical Control in the Metallurgical and Metalworking Industry") has, for some reason, been published in the subdivision on metallurgy. Abstract No 2880 ("Polarigraphic Analysis in a Stream") has been incorrectly included in the subdivision on electrochemistry.

Without sufficient reason, abstracts of articles dealing with the chemical means of controlling agricultural pests and with fertilizers have been grouped in one section. The two fields are entirely distinct: they have nothing in common either in the chemical or technological sense. Furthermore, all this work would be more correctly relegated to the subdivision on organic chemistry than that on inorganic chemistry.

The problem of classification in an abstract journal is very complicated. One cannot imagine an ideal classification system which will satisfy all users of the journal. If subdivision is carried out according to subjects of the investigation, for instance, organic chemistry and inorganic chemistry and, furthermore, according to the method of investigation, a certain amount of arbitrary classification is unavoidable, because many subjects may be included with equal justification in several subdivisions. The introduction of a standard classification system and the establishment within it of definite subdivisions may considerably facilitate use of the journal. At present, a logical sequence and a standard method of classifying the material are applied only in the subdivision on organic chemistry. There is no such classification in the other subdivisions.

Classification of abstracts should aid the reader in finding with facility the material in which he is interested. For that reason, one cannot consider as correct the classification of articles dealing with the structure of coal under the subdivision on crystals. It is hardly to be assumed that a reader interested in coal, particularly a worker at a specialized branch institute, will look for the information needed by him under crystals. With similar lack of justification, Abstract No 9991 ("A Compound for Surfacing Pavements") was published in the subdivision on corrosion and its control, while abstracts of articles dealing with the deterioration of concrete were published in a subdivision on the corrosion of metals. Incidentally, only about 50 abstracts per issue on the average were published in this subdivision in the 1953 issues. As contrasted with this, the US periodical Corrosion, which is not an abstract journal, publishes approximately 200 abstracts in this field in every issue.

Articles on metallurgy and the science of metals should probably be covered in an independent subdivision because of the sufficiently distinct nature of this branch of knowledge as an independent scientific discipline. Furthermore, the subdivision on chemical technology, where this type of information is published, is overloaded as it is. It may prove advisable to remove the subdivision on chemical technology from the chemical abstracts journal and publish it in the form of an independent issue, including therein abstracts of patents. This would be similar to the proposed publication of abstracts in biochemistry in the form of a separate issue. Such a solution of the problem will be more expedient than the transfer of abstracts in biochemistry to the biological abstract journal. The latter procedure cannot be regarded as advisable, although within the Academy of Sciences,

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biochemistry and biology are combined organizationally into a single subdivision i.e., the Department of Biological Sciences. Biochemistry is very important for organic chemists, and an enormous volume of reports in the field of organic chemistry is devoted to the investigation of physiologically active substances. If data on this range of problems are excluded, the value of the chemical abstract journal will be seriously impaired. Publication of abstracts in this subdivision in the form of a separate periodical will be convenient for both chemists and biologists.

Work on the history of chemistry is weakly represented in the journal; there are no abstracts in this field; only the titles of papers are cited.

Some subdivisions ought to be considerably expanded. Specifically, the number of abstracts on industrial syntheses and on the chemistry of coal, petroleum, and gas should be increased. At present, the number of abstracts in these fields is too small. For instance, in Issue No 12, only 8 pages out of 345 are devoted to them. This is not in accordance with the fact that in both the USSR and other countries extensive work is being conducted in these fields, and many interesting papers are published. The journal publishes very few abstracts of technological papers, particularly of those appearing in engineering and industrial publications. Publication of such abstracts would be of undoubted interest to workers in the fields concerned.

The publication of abstracts of patents deserves serious attention. The importance of patents in the development of industry is exceptional, because new trends in applied chemistry are, first reflected in patents. Patents cite constants and describe important experiments on the synthesis of various substances. If patents are not abstracted, our industrial workers, workers at specialized branch laboratories, and associates of scientific research institutes will not be able to keep track of new developments in applied chemistry throughout the world.

It would be incorrect to say that the journal does not abstract patents at all. But the patents abstracted are insignificant in quantity. It is sufficient to indicate, for instance, that in five issues of the journal (No 5-9) abstracts of only 145 patents in the field of the conversation of fossil fuels are published and that, furthermore, each abstract is restricted to only a few lines. In contrast, the corresponding subdivision of Chemical Abstracts has published abstracts of 856 patents, and the abstracts published in this journal are considerably more extensive. The number of abstracts of patents in other divisions must be multiplied many times as well. At the same time, the abstracting technique must be improved, although this technique is of sufficiently high quality so far as the other items abstracted by the journal are concerned.

Of course, among the great number of published abstracts some are inadequate, particularly those in which the most important part of the investigation, namely, its results, are not reported. Thus, in Abstract No 36773 ("The Results of a Meeting of the Northeastern Affiliate of the Chinese Academy of Sciences Concerning Problems of Fuel"), no mention is made of the results referred to in the heading. Abstract No 1569 merely says: "Titanium and Its Properties; a Review of Work in This Field." Something should have been said in regard to the content of the report referred to in the abstract.

An objective attitude is not always preserved in abstracting. A tendency to evaluate is often perceptable in the abstract: the abstracter uses expressions such as "in the opinion of the author," "the author assumes," etc. This type of treatment creates the impression that the

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abstracter doubts the accuracy of the author's opinion. Abstracters should not forget that the published paper must necessarily be an expression of the author's opinion. The abstracts should be limited to an exposition of the original article in an extremely condensed form; if this principle is discarded, the abstract journal will inevitably enter into a controversy with the author.

It would be desirable to abstract in greater detail articles not easily accessible and to shorten as much as possible the text of abstracts based on articles published in such widespread Soviet journals as Zhurnal Obshchey Khimii, Zhurnal Analiticheskoy Khimii, etc.

Furthermore, it is indispensable that all series of the abstract journal use a single standard terminology in the fields of science. This principle is not always observed, so that differences appear. These differences are occasionally expressed in the replacement of accepted terms by newly invented terms. For instance, the chemical abstract journal has already begun the abstracting of work on X-ray structural analysis and has introduced into use a number of terms which in part have received international acceptance. The newer abstract journal in the field of physics should use this terminology. Nevertheless, it is attempting to introduce its own terminology. Although the chemical journal has accepted the term "Fedorov's group," the physical journal uses the term "rpatial group." Whereas the chemical journal uses some internationally accepted symbols, the physical journal uses its own symbols. The same lack of agreement is observed so far as the indication of physicochemical values is concerned.

A terminology established in industrial usage cannot be changed or accepted Russian terms replaced by foreign terms according to the arbitrary wishes of the editor. However, the journal often uses the expression "binarnyy" instead of "dvoynoy," "krips" (creeps) instead of "polzuchest," and "propeller" instead of "vint." Or, to give another instance, the head of a distillation column is called "nasadka," although the term "nasadka" has an entirely different meaning in Soviet literature.

No less important is the problem of the standardization of nomenclature and symbols. In the journal, there is no agreement about the writing of symbols. Russian letters are used in one subdivision while Latin letters are used in another. One abstract uses the term "aqueous oxide" (vodnyy okisel) while another uses "hydroxide," although both refer to the same type of compound. Greater uniformity must also be observed in regard to conventional abbreviations.

The absence of standardized chemical nomenclature in the Russian language puts our journals in a difficult position and leads to the use of different terms for the same concept. An incorrect use of terms which have been generally accepted or an unjustified introduction of new terms leads to confusion. However, elimination of this evil cannot be carried out by an abstract journal alone.

The problem of establishing a single scientific terminology is not taken care of by eliminating minor inconsistencies. The root of the evil is that there is no accepted unified international nomenclature. For this reason, the problem must be solved on an international scale. The 14th International Congress of Theoretical and Applied Chemistry will take place in 1955. The committee on nomenclature will meet as usual during the congress. It is extremely important to present to this committee any proposals on terminology which have been worked out in the USSR. For this purpose, the experience of the abstract journal alone is inadequate, the participation of the scientific community as a whole is necessary. Action on this matter could be organized by the Moscow Section of the All-Union Chemical Society imeni D. I. Mendeleyev.

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The very high price of Referativnyy Zhurnal Khimiya must also be mentioned. A year's subscription, together with the subject index costs 532 rubles. This amount cannot be afforded by most ordinary scientific and prduction workers. The availability of one or two copies in the library will not satisy the demand for a journal of such exceptional value to every worker in every field of chemistry.

Some reduction in cost of the journal can be achieved by breaking it up into separate issues covering individual subjects. This will enable persons interested to subscribe to the section they need. At the same time, the publication of the journal will be accelerated and its use and filing simplified. The journal is too voluminous. In 1955, the size of each issue will be increased to 30 signature sheets, so that use of the journal will become more difficult, while keeping a set of several annual volumes in a personal library will become too great an encumbrance for most scientific workers.

Let us return to the important problem of reducing the lag between the time of publication of the original paper and the time of publication of the abstract.

It may be expedient to reduce the number of abstracts published for the time being, and then, in the future, when the organization of the work has proved, not only to restore the status quo but to expand the number of publications abstracted, including, for instance, papers published in biological and agricultural journals.

To expedite the publications of abstracts of particularly interesting papers, it is advisable to annotate them on the basis of the proofs, a procedure followed, for instance, by the British abstract journal. This procedure expedites the publication of the abstracts by almost a year.

To familiarize our chemists with papers published in foreign journals, a bibliography of the articles may be published with annotating it, so that the persons desiring so may order a photostatic copy of the article in which they are interested and obtain this copy at a date considerably earlier than that of the publication of the abstract in the abstract journal. The making of photostats has already been organized by the institute of Scientific Information. Systematic publication of such bibliographies in selected fields will considerably shorten the period needed for informing readers of the content of foreign chemical periodicals. It would be advisable to publish such bibliographic lists separately from the journal. So far as a bibliography of books is concerned, it must necessarily contain brief annotations.

The possibility of increasing, within the limits permitted by our printing technique, the number of items published in the journal by more efficient utilization of the space of the printed sheet must also be considered.

It is essential to make the Soviet abstract journal the best publication of its kind. To accomplish this, it will be necessary to render active aid to the editorial staff and to enlist the collaboration of specialists in all fields of science, particularly in all subdivisions of chemical technology, a field least covered at present by the journal.

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Naturally, the Department of Chemical Sciences must render the most extensive aid to the journal. The scientific workers of the institutes within the Department of Chemical Sciences must be urged to contribute to prompt publication of abstracts and improvement in the quality of these abstracts.

It is intolerable that major academic institutions such as the Institute of Geochemistry and Analytical Chemistry and the Institute of General and Inorganic Chemistry fail to participate in the work of the journal.

The abstract journal is not a private undertaking of the Institute of Scientific Information, but a common responsibility of the Soviet scientific community.

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